Universiti Teknologi MARA

Sleep as a Predictor of Depression Level Using Naïve Bayes

Nur Syakinah Bt Md Roduan

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STUDENT DECLARATION

I certify that this thesis and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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NUR SYAKINAH BT MD RODUAN
2014227976

JULY 24, 2017

ABSTRACT

The percentage of peoples having depression nowadays is said to be inclining. However, many of the patients do not even realize that they are having major depressive disorder. Busy with abundance of works and not having any time to seek a doctor for check-up may worsen the patient condition. So, a prediction system was developed to predict students' level of depression based on their sleep behaviors that uses Naïve Bayes method, which implement Artificial Intelligence (AI) as result of survey conducted to the target user proved that majority of them need a system that can predict depression level. Five independent variables which are insomnia, amount of sleep (hours), overall sleep quality, sleep onset latency, and number of awakening per sleep that has been identified as the most-used variables in many previous research are used for the prediction model. The target subject to realize the objectives of the prediction system are students under the Faculty of Computer and Mathematical Sciences in UiTM Jasin who is currently in the 6^{th} semester. From 150 total data collected, 80% of them were used as training data, and 20% were for the new data to be tested. A total of 31 prediction models were produced and tested. All 31 models are to predict the students' depression level, which include normal, mild, borderline, moderate, and severe depression gave an average of 51.075% accuracy for 120 training data and average of 37.527% accuracy for the 30 new data collected through questionnaires to the subject. Agile methodology is used throughout the development of the system to ensure that this project work properly according to plan. Functionality testing are also done to make sure that the system is working properly without having any error. In conclusion, this research demonstrated that Naïve Bayes method could be used to predict the level of depression. Future work on this subject should improve the findings by modifying the variables used and/or by using other methods in term of data collection or the algorithm itself.

TABLE OF CONTENTS